

WHAT IS CLAIMED IS:

1 1. A device for applying a magnetic field to a microtiter plate, said
2 device comprising:
3 a substrate; and
4 a plurality of magnetic elements disposed on said substrate, wherein said
5 plurality of magnetic elements are arranged parallel to each other such that the longitudinal
6 axis of each magnetic element is approximately centered under a row or column of wells of a
7 microtiter plate when said microtiter plate is positioned upon the device.

1 2. The device of claim 1, wherein said substrate is comprised of a
2 material selected from the group consisting of polymers, plastics, pyrex, quartz, resins,
3 silicon, silica, silica-based materials, carbon, metals, inorganic glass and combinations
4 thereof.

1 3. The device of claim 1, wherein said substrate is comprised of a
2 material selected from the group consisting of organic, inorganic, biological, nonbiological
3 materials and combinations thereof.

1 4. The device of claim 1, wherein said substrate is substantially disc-
2 shaped, square-shaped, rectangle-shaped or combinations thereof.

1 5. The device of claim 1, wherein said substrate has substantially the
2 same shape and size as said microtiter plate.

1 6. The device of claim 1, wherein the device comprises one magnetic
2 element for each column of wells of the microtiter plate.

1 7. The device of claim 1, wherein the device comprises twenty-four
2 magnetic elements and the longitudinal axis of each element is approximately centered under
3 a column of wells of a 384-well microtiter plate.

1 8. The device of claim 6, wherein each magnetic element is
2 approximately the same length of a column of wells of the microtiter plate.

1 9. The device of claim 1, wherein the device comprises one magnetic
2 element for each row of wells of the microtiter plate.

1 10. The device of claim 9, wherein the device comprises sixteen magnetic
2 elements and the longitudinal axis of each element is approximately centered under a row of
3 wells of a 384-well microtiter plate.

1 11. The device of claim 9, wherein each magnetic element is
2 approximately the same length of a row of wells of the microtiter plate.

1 12. The device of claim 1, wherein adjacent magnetic elements are in
2 contact with each other.

1 13. The device of claim 1, wherein adjacent magnetic elements are
2 separated from one another by a non-magnetic material.

1 14. The device of claim 1, wherein each magnetic element is
2 approximately as wide as the diameter of a well of the microtiter plate.

1 15. The device of claim 1, wherein the device does not include a
2 mechanism for horizontal circular translation of the microtiter plate.

1 16. The device of claim 1, wherein the device further comprises a
2 microtiter plate positioned upon the magnetic elements.

1 17. The device of claim 16, wherein one or more wells of the microtiter
2 plate contains a suspension of magnetic particles.

1 18. The device of claim 17, wherein the suspension comprises
2 immunoassay reagents.

1 19. The device of claim 17, wherein the suspension comprises a primer
2 extension reaction.

1 20. The device of claim 19, wherein the primer extension reaction is a
2 DNA sequencing reaction.

1 21. The device of claim 19, wherein the suspension comprises dye-labeled
2 molecules and a polymer into which dye-labeled molecules are incorporated, and particles

3 that comprise a paramagnetic moiety and a porous hydrophobic material entrapped within a
4 hydrophilic matrix.

1 22. A method for removing unincorporated dye-labeled molecules from a
2 mixture that comprises the dye-labeled molecules and a polymer into which dye-labeled
3 molecules are incorporated, the method comprising:

4 a) contacting the mixture with a plurality of particles that
5 comprise a paramagnetic moiety and a porous hydrophobic material
6 entrapped within a hydrophilic matrix;

7 b) mixing and incubating the mixture and the particles for a
8 sufficient time for dye-labeled molecules that are not incorporated into the
9 polymer to pass into the hydrophilic matrix and become adsorbed onto the
10 hydrophobic material;

11 c) placing a microtiter plate of which one or more wells contains
12 the mixture upon a device that comprises a plurality of magnetic elements
13 which are arranged parallel to each other such that the longitudinal axis of
14 each magnetic element is approximately centered under a row or column of
15 wells of the microtiter plate, thereby concentrating the particles on a surface
16 of the microtiter plate wells; and

17 d) removing the liquid phase from the wells, thus leaving behind
18 the adsorbed unincorporated dye-labeled molecules.

1 23. The method of claim 22, wherein the mixture comprises a primer
2 extension reaction.

1 24. The method of claim 23, wherein the primer extension reaction is a
2 DNA sequencing reaction.

1 25. The method of claim 24, wherein the polymers are polynucleotide
2 molecules and the dye-labeled molecules are dye-labeled dideoxynucleotides.